



Metro Nashville
DISTRICT ENERGY SYSTEM

Semi-Annual DES Customer Meeting
Autumn 2008 (FY09)

Presented to
Metro DES Customers

October 16, 2008



Metro Nashville
DISTRICT ENERGY SYSTEM

Agenda

1. Welcome!
2. Comparison of Customer Annual Costs
3. Annual True-up
4. Approved FY09 Budget
5. Impact of Natural Gas & Electric Rate Increases
6. CEPS Scorecard
7. Capital Projects Review
8. Customer Operating Cost Reduction
9. Environmental Impact of MNDES
10. Questions & Answers
11. Adjourn



Metro Nashville
DISTRICT ENERGY SYSTEM

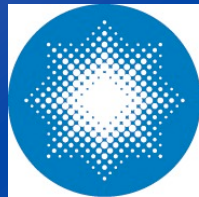
1. Welcome!



*THERMAL
ENGINEERING
GROUP, INC.*



Metro Nashville
DISTRICT ENERGY SYSTEM



Constellation Energy[®]
Projects & Services Group



Metro Nashville
DISTRICT ENERGY SYSTEM

2. Comparison of Customer Annual Costs

	Steam (\$ millions)			Chilled Water (\$ millions)		
	FY07	FY08	% Diff.	FY07	FY08	% Diff.
Private	\$2.631	\$2.289	-13.0%	\$3.832	\$3.890	1.5%
State	\$3.138	\$2.866	-8.7%	\$3.116	\$3.200	2.7%
Metro	\$4.451	\$3.456	-22.4%	\$3.553	\$3.401	-4.3%
New Customers	\$0.692	\$0.532	-23.1%	\$1.304	\$1.319	1.2%
Aggregate	\$10.220	\$8.611	-15.7%	\$10.501	\$10.491	<0.1%

Includes MFA allocated to Metro Buildings (pre-True-up)



Metro Nashville
DISTRICT ENERGY SYSTEM

3. Annual True-up

Adjustments	Credits (Charges)
Engineering Accruals Overpayment	\$34,241.41
Metro Incremental Underpayment	\$111,955.38
CEPS Fuel Efficiency Adjustment (FEA)	\$374,823.64
Electricity for Steam	\$11,279.77
Natural Gas for Steam	\$121,072.65
Water for Steam	(\$611.36)
Electricity for Chilled Water	\$172,934.15
Water for Chilled Water	\$40,148.43
Gas Cost Overstatement	\$2,469.81
Gas Consulting Fees	\$3,284.50
Total Adjustment	\$526,774.74



Metro Nashville
DISTRICT ENERGY SYSTEM

4. Approved FY09 Budget

Item	FY08 Actual Costs (post True-up)	FY09 Budget	Percent Change from FY08
* FOC: Basic	\$ 3,739,971	\$ 3,852,200	3.00%
* FOC: 9th Chiller	\$ 35,044	\$ 36,100	3.01%
* FOC: Change Order 6A	\$ 69,187	\$ 71,300	3.05%
* FOC: Change Order 6B	\$ 60,571	\$ 62,400	3.02%
Chemicals	\$ 187,192	\$ 156,500	-16.40%
Engineering	\$ 21,160	\$ 40,000	89.04%
Insurance	\$ 29,850	\$ 42,400	42.04%
Marketing: CEPS Sales Activity	\$ -	\$ 27,000	0.00%
Metro Marketing	\$ 33,027	\$ 52,900	60.17%
Incentive Payments	\$ 27,801	\$ 30,100	8.27%
Project Administration	\$ -	\$ 24,200	0.00%
Metro Incremental Cost	\$ 505,605	\$ 568,000	12.34%
Water/Sewer	\$ 469,390	\$ 681,600	45.21%
Natural Gas/Propane	\$ 4,854,021	\$ 6,584,800	35.66%
Electricity	\$ 4,014,589	\$ 4,437,300	10.53%
* EDS Repair & Improvement	\$ 161,709	\$ 171,400	5.99%
* EDS Surcharge	\$ -	\$ 68,500	n.a.
* Sub-total Operations	\$ 14,209,117	\$ 16,906,700	18.98%
2002 Bonds	\$ 4,362,377	\$ 4,361,800	-0.01%
2005 Bonds	\$ 629,837	\$ 631,600	0.28%
FY07 Projects	\$ 227,800	\$ 227,800	0.00%
FY08 Projects	\$ -	\$ 220,500	n.a.
Debt Service Interest Revenue	\$ -	\$ (72,300)	n.a.
Oper. Reserve Funding Deposit	\$ 190,961	\$ 97,300	-49.05%
* Sub-total Debt Service	\$ 5,410,975	\$ 5,466,700	1.03%
* Total Expenses	\$ 19,620,100	\$ 22,373,400	14.03%
Customer Revenues	\$ 17,427,025	\$ 19,751,600	13.34%
Project Admin. Revenue		\$ 24,200	
Total Metro Funding Amount	\$ 2,193,075	\$ 2,597,600	18.45%



Metro Nashville
DISTRICT ENERGY SYSTEM

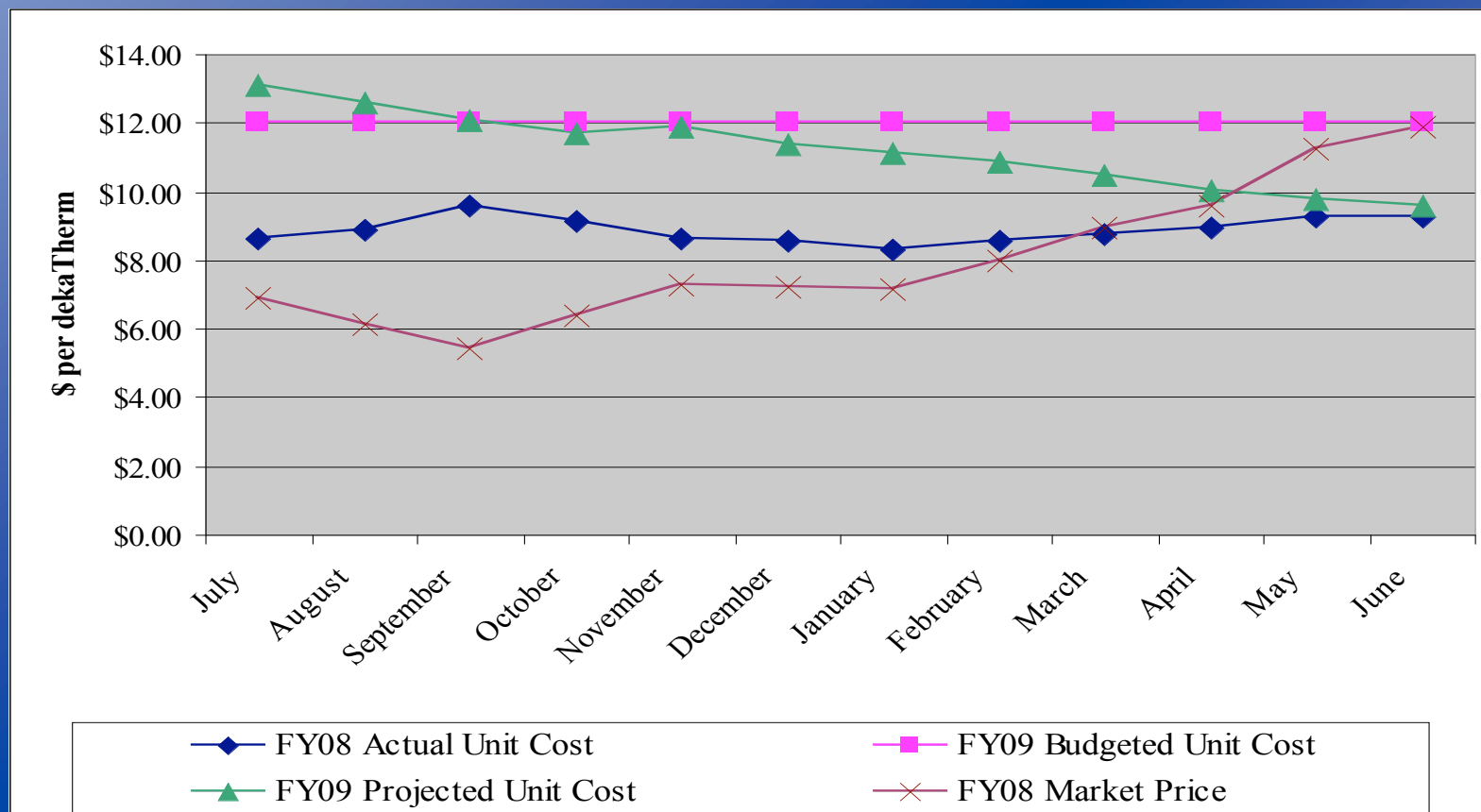
5. Impact of Natural Gas & Electric Rate Increases

- **Natural Gas Rate Increase (graph)**
- **Electric Rate Increase**
 - 20% increase in rate from utility
 - 5% increase in overall budgeted cost
 - 15.8% increase in budgeted electric cost for steam & chw
- **Budget Process for Customers**
 - DES budget on fiscal year (July to June)
 - DES budget includes price & weather contingencies
 - What do customers need from DES?



Metro Nashville
DISTRICT ENERGY SYSTEM

Projected Gas Cost Comparison for FY09







Metro Nashville
DISTRICT ENERGY SYSTEM

6. CEPS Scorecard

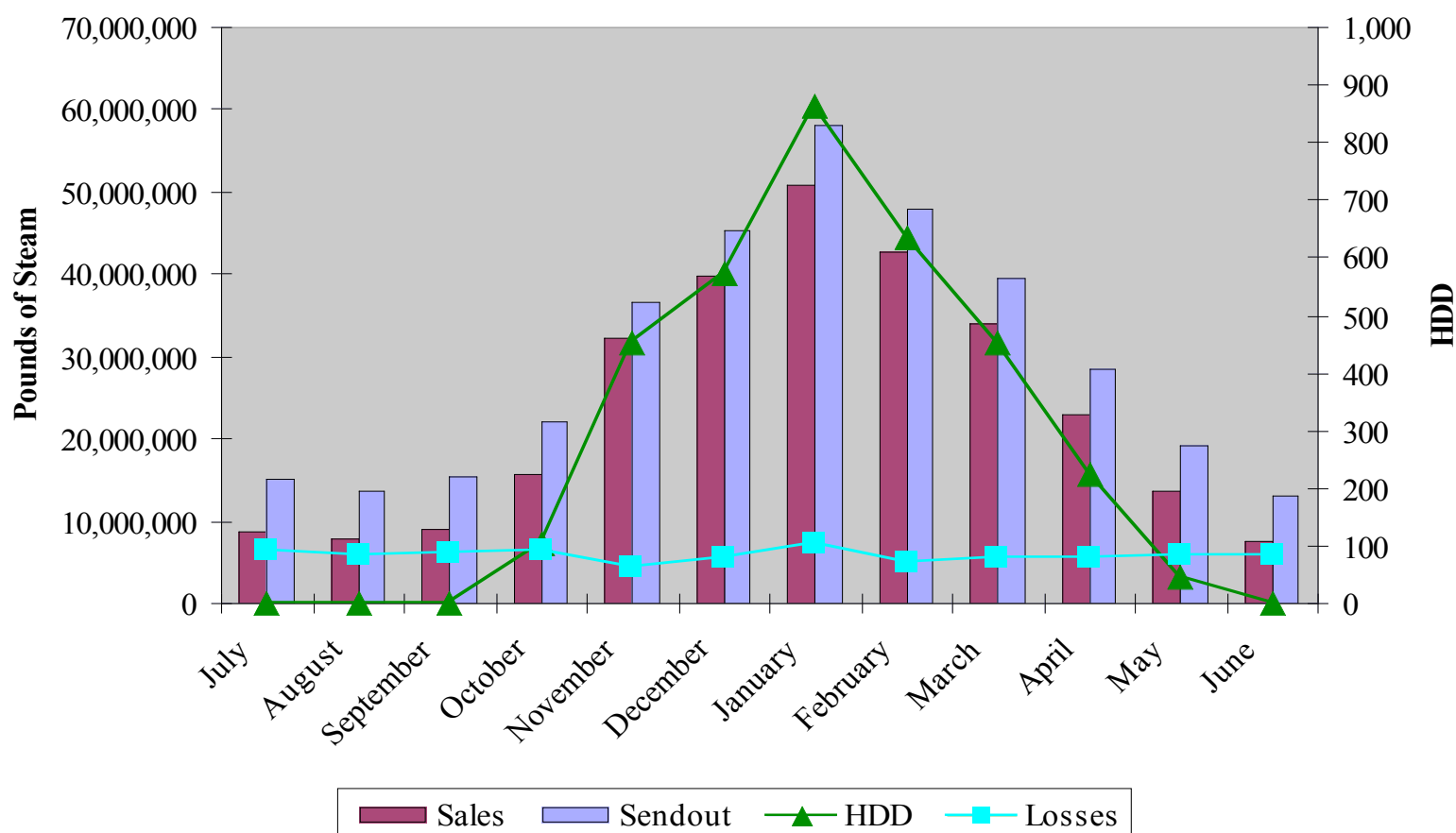
Contractor (CNDE) is in compliance with their contractual obligations for FY08.

-  Excellent Performance – No Improvement Necessary
-  Satisfactory Performance – Some Improvement Could Be Made
-  Poor Performance – Much Improvement Necessary



Metro Nashville
DISTRICT ENERGY SYSTEM

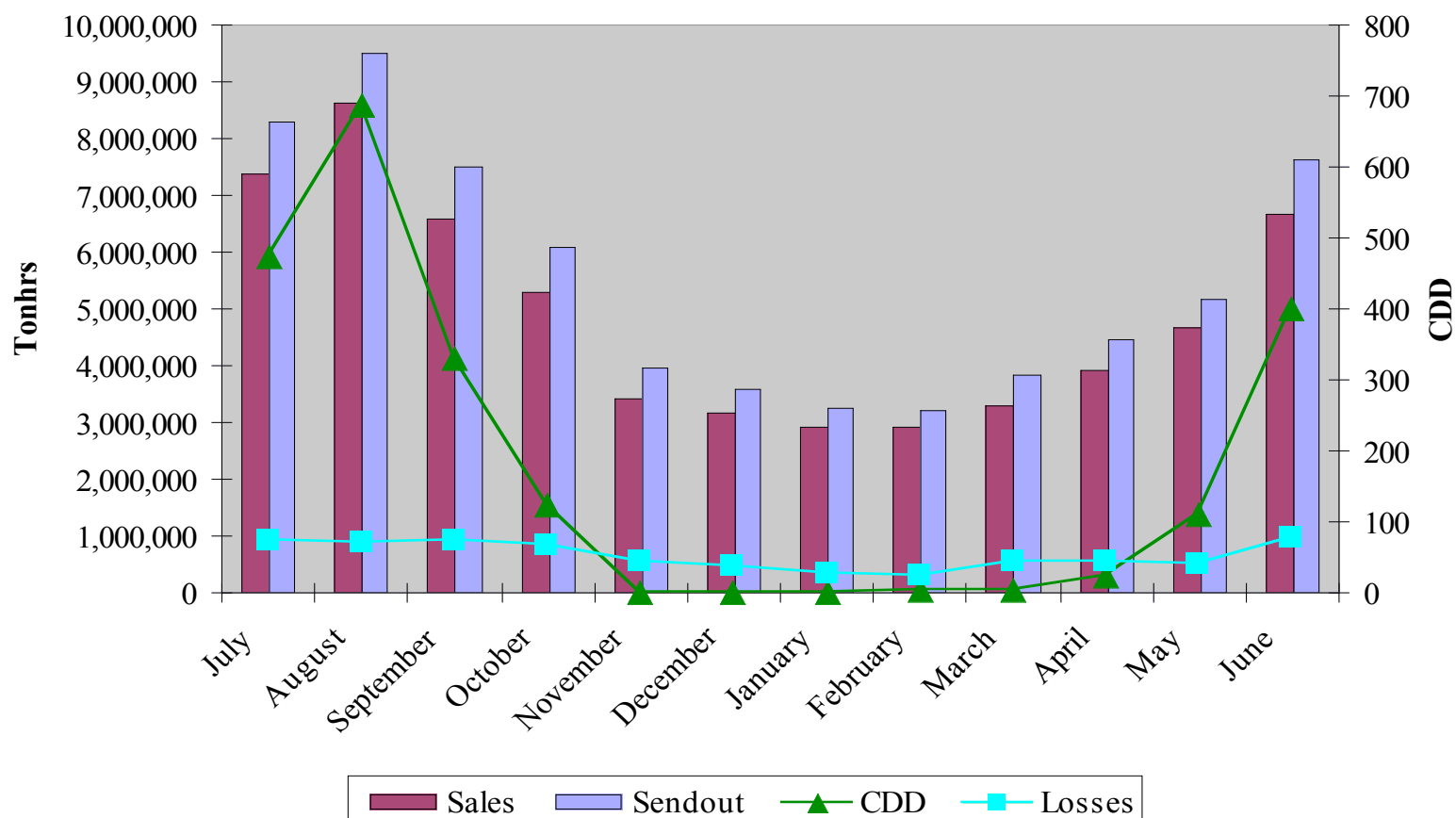
FY08 Operations: Steam





Metro Nashville
DISTRICT ENERGY SYSTEM

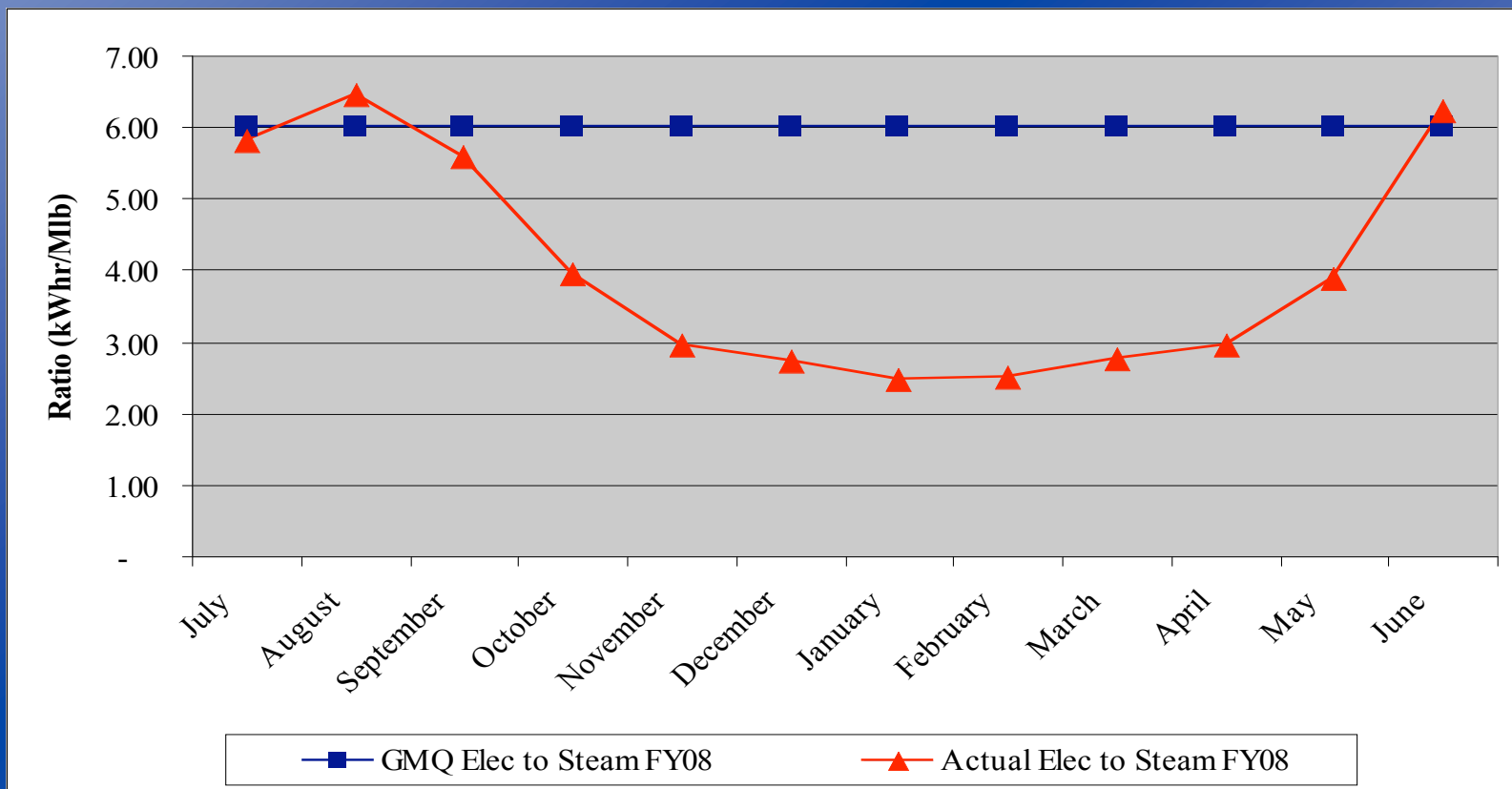
FY08 Operations: Chilled Water





Metro Nashville
DISTRICT ENERGY SYSTEM

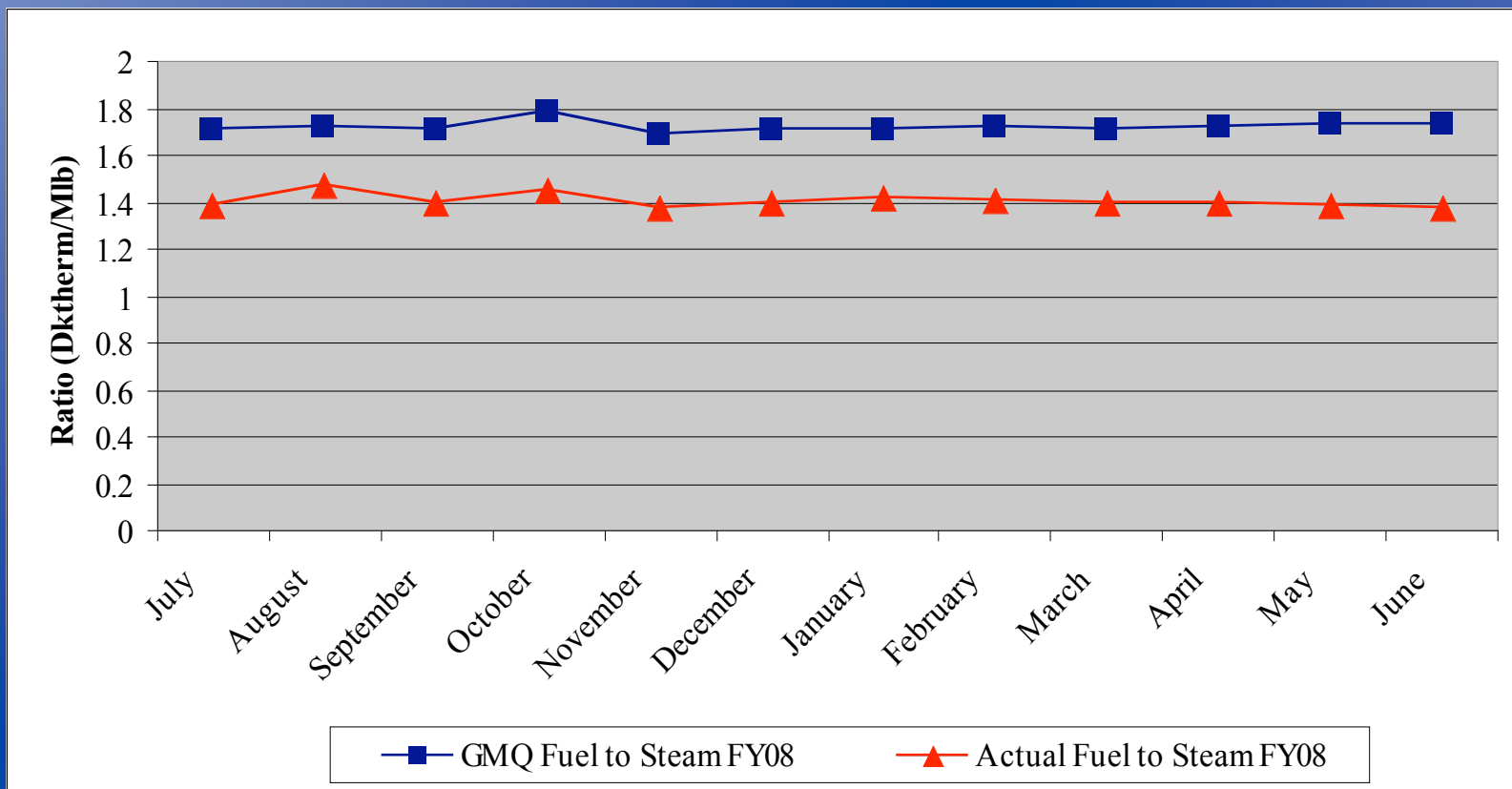
Performance Measurement FY08: Steam Electric Conversion





Metro Nashville
DISTRICT ENERGY SYSTEM

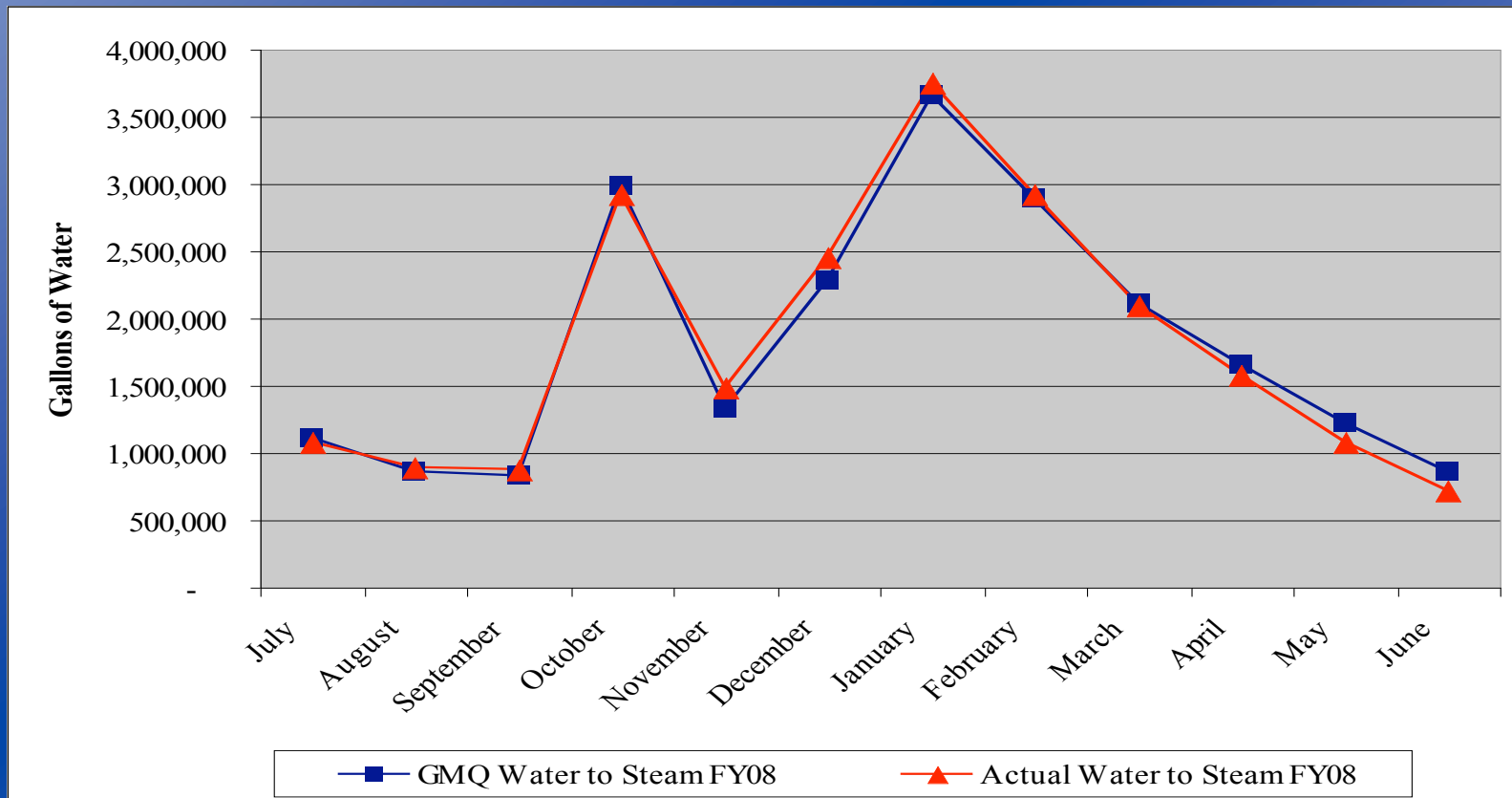
Performance Measurement FY08: Steam Plant Efficiency





Metro Nashville
DISTRICT ENERGY SYSTEM

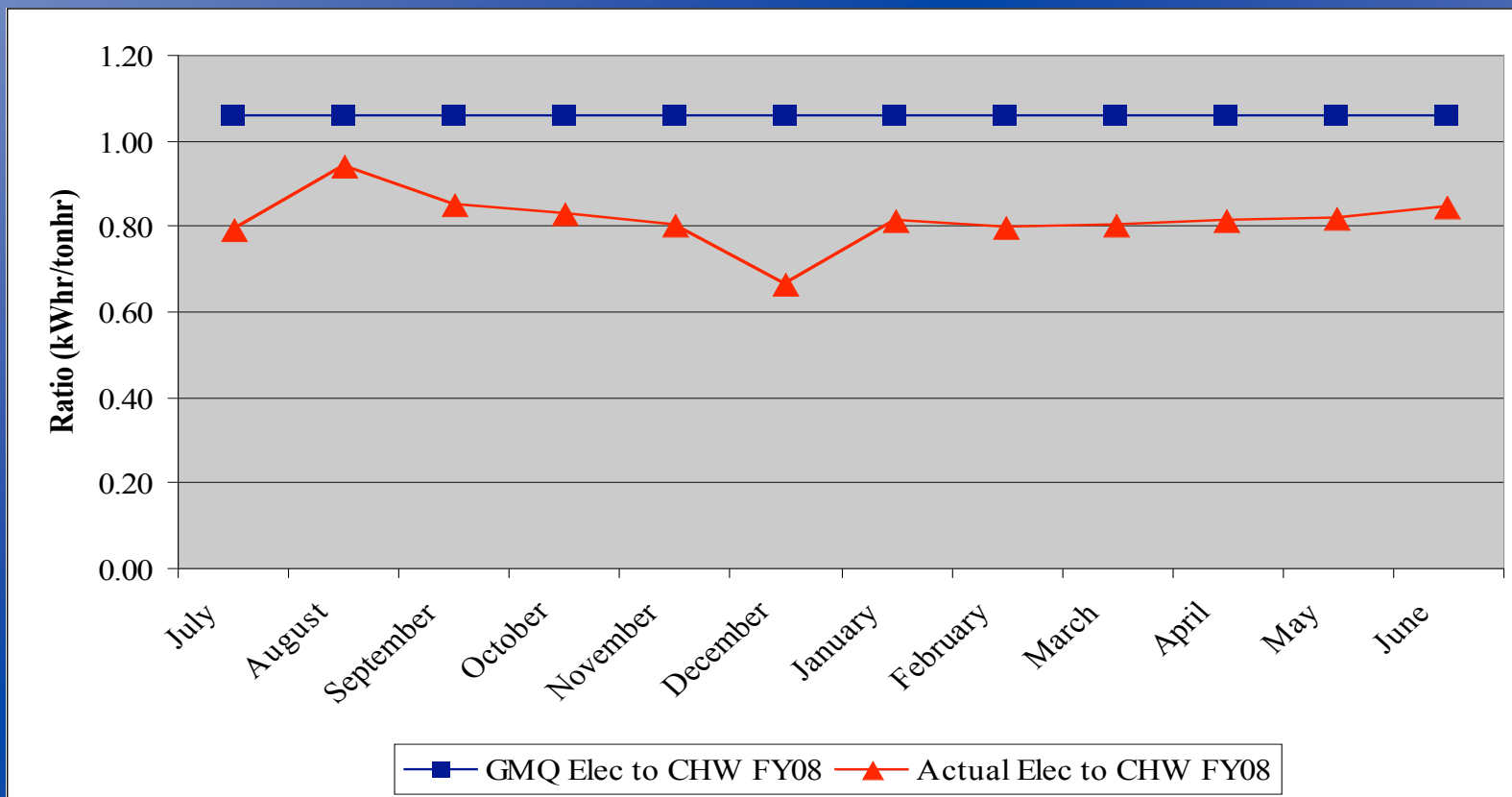
Performance Measurement FY08: Steam Water Conversion ●





Metro Nashville
DISTRICT ENERGY SYSTEM

Performance Measurement FY08: Chilled Water Electric Conversion

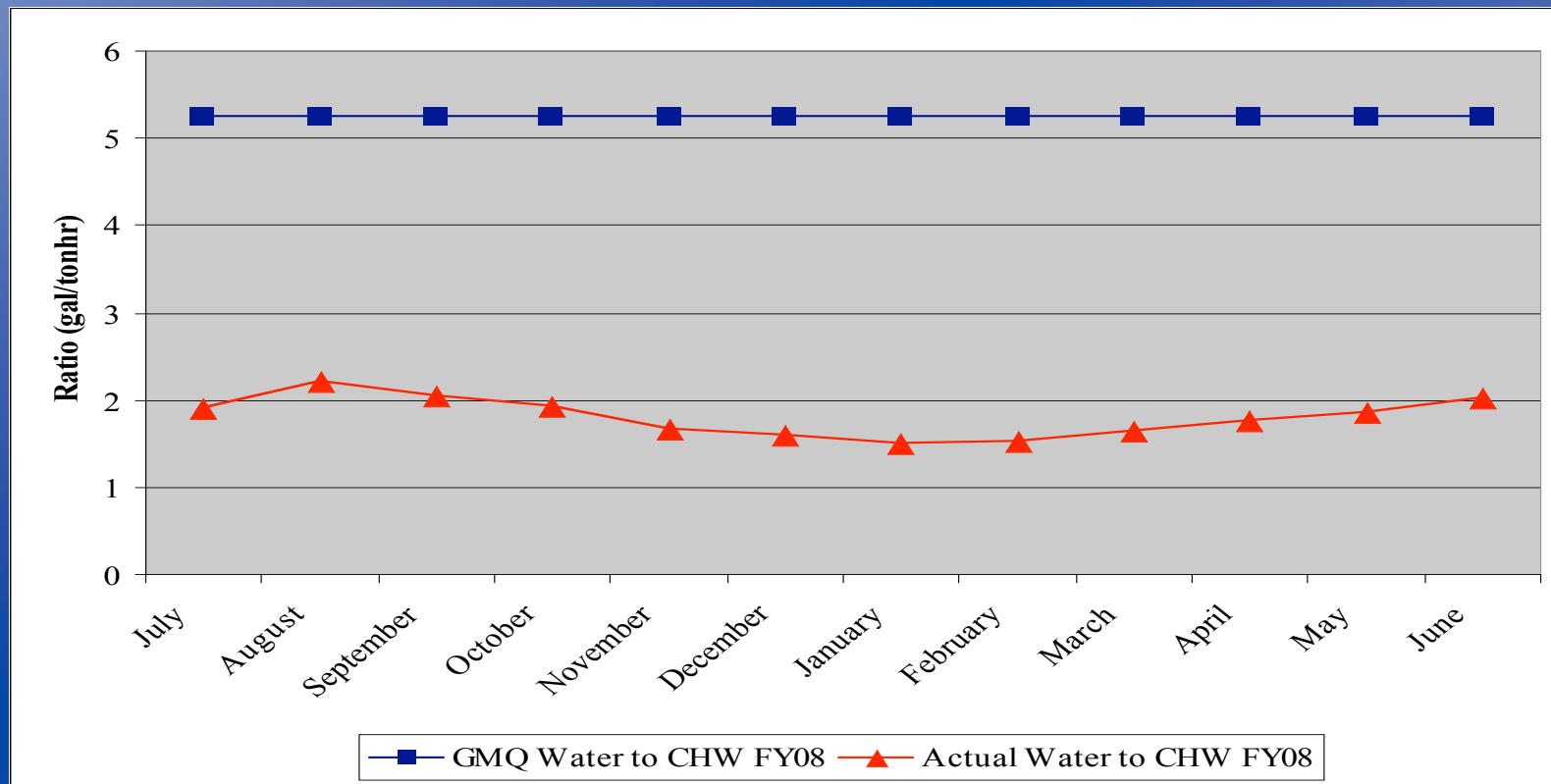




Metro Nashville
DISTRICT ENERGY SYSTEM

Performance Measurement FY08: Chilled Water

Water Conversion





Metro Nashville
DISTRICT ENERGY SYSTEM

Water Treatment

- Steam/Condensate

- Corrosion



- Hardness



- Chlorine/Sulfite



- Condensing Water

- Conductivity



- Biologicals



- Chilled Water

- Hardness



- Corrosion



- Biologicals





Metro Nashville
DISTRICT ENERGY SYSTEM

EGF Walkthrough Quarterly Inspection Process

- Equipment Maintenance ●
- Operations ●
- Electrical ●
- Housekeeping ●
- Building Structure ●
- Building Exterior and Grounds ●



Metro Nashville
DISTRICT ENERGY SYSTEM

EDS Walkthrough

Quarterly Inspection Process

- Manhole/Tunnel Housekeeping ●
- Maintenance Items
 - Insulation Repair/Replacement ●
 - Water Infiltration ●
 - Corrosion of Structural Metal Components ●
- Safety Items ●

7. Capital Projects Review

Active Project Status

- DES 036: 4th Ave Tunnel Fan (R&I) - in closeout
- DES 041/054: Symphony CND – in construction
- DES 042: 401 Union St. CND Replacement – closed
- DES 045: MH 6 to MH 23 CND Replacement – closed
- DES 046: Ryman CND – in design
- DES 047: State Tunnel CND Replacement – closed
- DES 049: Temp. Blr Conn. @ MH 15 – closed
- DES 050: MH Insulation – ongoing; MH B, M & 10 in closeout
- DES 052: Wildhorse CND Tempering – in closeout



Metro Nashville
DISTRICT ENERGY SYSTEM

8. Customer Operating Cost Reduction

- Fuel Efficiency Adjustment (FEA)
- Capital Project ROI
 - Boiler O₂ Trim
 - Power Factor Correction Capacitor
 - Condensate Return
 - New Customers
- TIFS & Contract Demand



Metro Nashville
DISTRICT ENERGY SYSTEM

Thermal Inefficiency Surcharges (TIFS)

- Caused by Low CHW Return Temps
- High CHW Flow Rates Relative to Load
- Poor Heat Transfer at Building Coils
 - Dirty coils inside and out
 - Reduced air flow (dirty filters, fan belts, etc.)
- Poor Controls
- Most Customers Incurring TIFS
- High DT Helps Everyone with Increased EGF Efficiency and Decreased Pumping Energy!



Metro Nashville
DISTRICT ENERGY SYSTEM

Contract Demand

- Applicable to Steam & Chilled Water
- Demands Reviewed Each Month
- Excursion Above 103% Contract Demand
 - Lasting for ~30 Minutes or Longer
 - Frequent or Multiple Excursions in Month
 - Mechanical Problems?
- Notification/Warning Letter
- Potential Demand Adjustment for 12 Months



Metro Nashville
DISTRICT ENERGY SYSTEM

Causes for High Demand

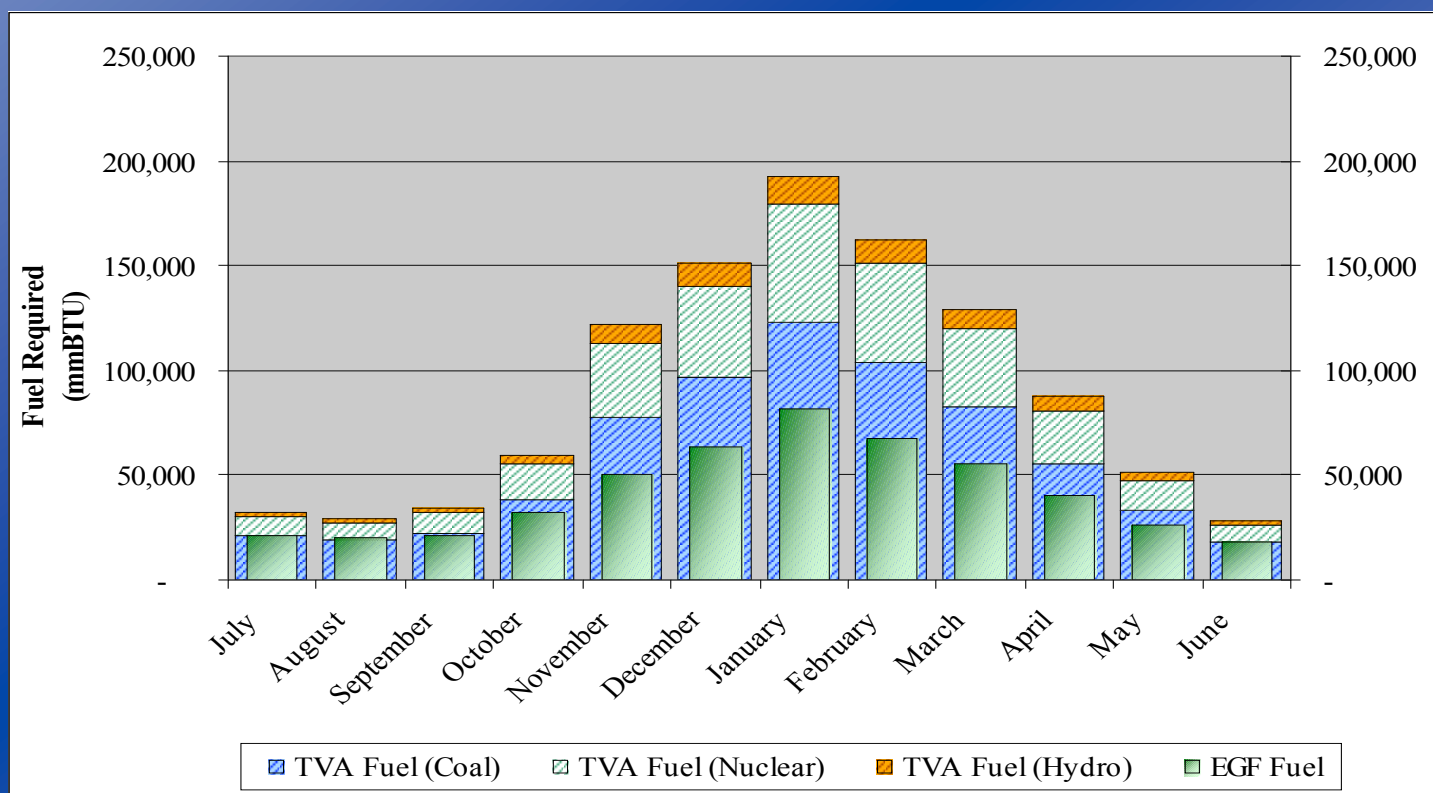
- “Sudden” Increase in Building Load
 - Quickly Opening Valves
 - Turning Pumps on After Being Off
 - Trying to Heat up or Cool Down Building Quickly
 - **Always Stage Equipment!**
- Events or High Occupancy
- Keeping Doors/Windows Open
- Simultaneous Use of Steam & Chilled Water
- Experiencing Actual Peak Demand



Metro Nashville
DISTRICT ENERGY SYSTEM

9. *Environmental Impact of MNDES*

Fuel Requirement to Deliver Steam Energy to Customers FY08

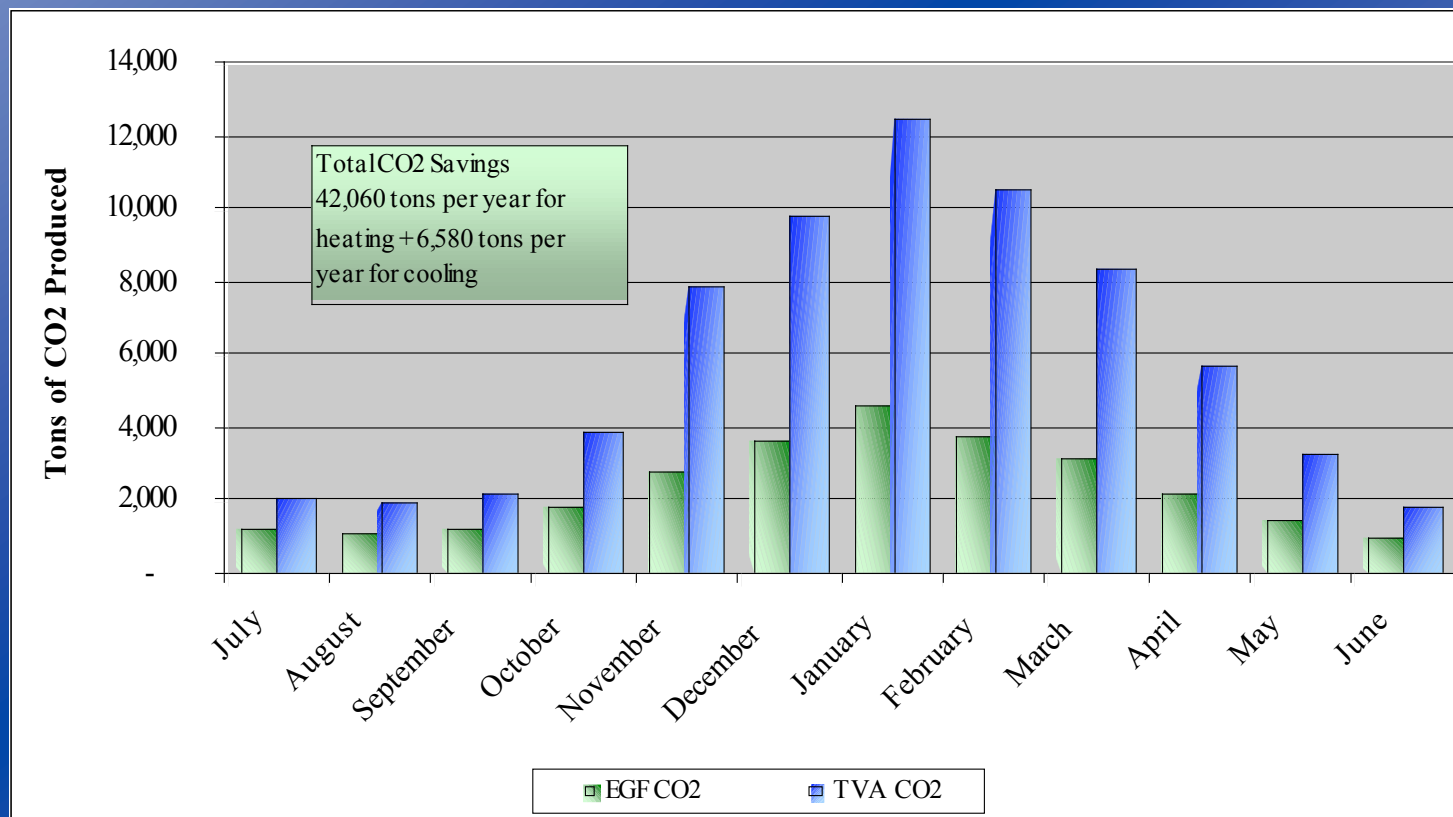


Based on 1,022.1 BTU/lbm steam enthalpy, 10% elec dist losses and 30% TVA plant eff



Metro Nashville
DISTRICT ENERGY SYSTEM

CO₂ Production FY08



Based on NG: 2.66lbCO₂/lbfuel at 23,410 BTU/lb; Coal: 2.46lbCO₂/lbfuel at 12,100 BTU/lb



Metro Nashville
DISTRICT ENERGY SYSTEM

10. Questions & Answers

11. Adjourn

Thanks for Coming!